The study investigates effects of language attrition and phonetic similarity on Taiwanese tonal processing. A mid level tone is found to merge into a low-falling tone among young Taiwanese speakers who speak Mandarin more frequently than Taiwanese in the recent decade (Luo, 2005; Yeh & Tu, 2010). Yeh and Tu (2010) propose that the mid level tone is pronounced as a low-falling tone due to dramatic decrease of Taiwanese exposure. However, their study does not exclude a potential tone sandhi effect on the tonal confusion. In Taiwanese, mid level tone becomes low-falling tone in non-final position, as illustrated in (1).

The current study recruits a group of fluent Taiwanese speakers (older in general) to re-examine the effects of language attrition and phonetic similarity on the tonal confusion between mid level tone and low-falling tone.

(1) 51(high-falling)\(\rightarrow\) 55 (high level)\(\rightarrow\) 33 (mid level)\(\rightarrow\) 24 (rising) \(\rightarrow\) 21 (low-falling)

Three perception tasks and one production task were conducted on 15 old Taiwanese speakers (mean age: 40 yrs) and 30 young Taiwanese speakers (mean age: 25 yrs) who used to be Taiwanese-Mandarin bilinguals but now have Taiwanese conversation less than 1 hour per week in the current decade. Regional difference, northern, central, and southern dialects, is counterbalanced. In the AXB discrimination task, Taiwanese participants are instructed to discriminate each pair of the five Taiwanese tones. In the tonal identification task, Taiwanese tones are presented in isolation and the participants are asked to identify which tone they heard. In the production task, the participants are asked to read Taiwanese words with five different tones.

The results show that the mid level tone is the most confusing category in both participant groups. In the production results, both groups tend to pronounce mid level tone as low-falling tone. However, in the perception results, the error patterns are quite different between the two groups: young speakers tend to categorize mid level tone as high level tone, whereas old speakers have no such a tendency. The group of old speakers may also categorize mid level tone as low-falling tone. In other words, the production-perception asymmetry is found among young speakers, but not in old speakers. The findings, thus, support the attrition effect on tonal change of mid level tone in Taiwanese.